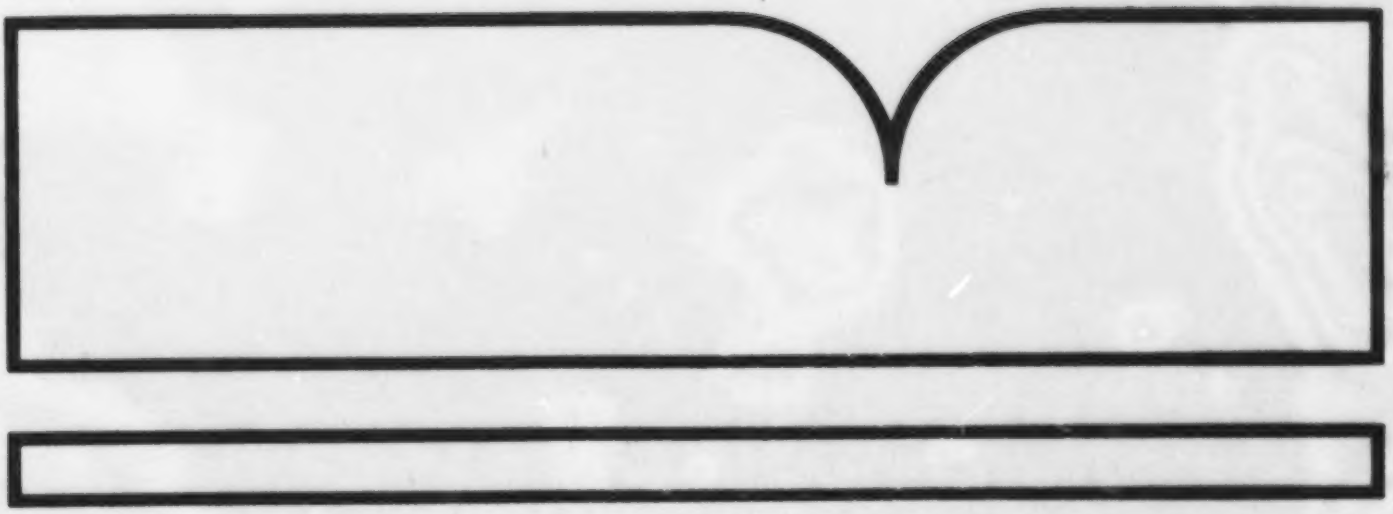
PB85-232130

Superfund Record of Decision (EPA Region 4)
Whitehouse Waste Oil Pits
Whitehouse, Florida, May 1985

(U.S.) Environmental Protection Agency
Washington, DC

30 May 85



U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R04-85/003
May 1985

PB85-232130

EPA

Superfund Record of Decision:

Whitehouse Waste Oil Pits, FL

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R04-85/003		PB85 232130 /AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION Whitehouse Waste Oil Pits, FL	5/30/85 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Whitehouse Waste Oil Pits site is located near the community of Whitehouse, FL and occupies approximately seven acres of an upland area immediately adjacent to a cypress swamp. Two major east-west highways, U.S. Highway 90 and Interstate 10, are approximately 0.5 miles south of the site. A low-density residential area is located west and northwest of the site, and several miles northwest of the site is the Cecil Field U.S. Naval Air Station. The site itself consists of seven unlined pits, constructed by Allied Petroleum, where waste oil sludge, acid and contaminated waste oil from an oil reclaiming process were disposed. The first pits were constructed in 1958, and by 1968 the company had constructed and filled seven pits with approximately 127,000 cubic yards of waste. Allied Petroleum then went bankrupt. Consequently, the pits were abandoned, and remained an "open dump" for several years. Recent activities have increased the volume of contaminated material to an estimated 240,000 cubic yeards.

The selected remedial action includes: construction of a slurry wall around the entire site; recovery and treatment of contaminated ground water; removal of the contaminated ground water; removal of the contaminated sediments from the northeast tributory of McGirts Creek; and capping the entire site. Total capital cost for the selected remedial alternative is estimated to be $3,049,000 and operations and maintenance costs are estimated to be an additional $96,630 per year.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Whitehouse Waste Oil Pits, FL Contaminated Media: gw, soil, sw Key contaminants: hexavalent chromium, arsenic, lead, phenols, benzene, and PAH (fluoranthene, phenanthrene, pyrene)		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	None	32
	20. SECURITY CLASS *(This page)*	22. PRICE
	None	

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

RECORD OF DECISION
Remedial Alternative Selection

Documents Reviewed

I am basing my decision on the following documents describing the analysis of the cost-effectiveness and feasibility of remedial alternatives for the Whitehouse Waste Oil Pits Site:

- Remedial Action Master Plan, Whitehouse Site - Ecology & Environment, Inc.
- Remedial Investigations: Phase I - FDER/USGS, Phase II - Ecology & Environment, Inc. (Appendix 1 & 2)
- Focused Feasibility Study, Whitehouse Waste Oil Pits Site, Ecology & Environment, Inc. January 1985. (Appendix 3)
- Responsiveness Summary and Recommendations
- Summary of Remedial Alternative Selection
- State's position statement and O&M commitment

Description of Selected Alternative

After a thorough review of all options, I have determined that alternative (C1) as detailed in the Feasibility Study and outlined below is the appropriate remedy for this site. Alternative (C1) - containment of the wastes - includes:

- Construction of a slurry wall around the entire site, keyed into the aquitard, isolating the waste;
- Recovery and treatment of contaminated groundwater within the walled area, thus contributing to waste isolation
- Removal of contaminated sediments from the northeast tributory of McGirts Creek and placing within the isolation area; and
- Surface cap entire site to reduce the inflow of water into the walled area.

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have determined that the

on-site containment alternative (C-1) at the Whitehouse Waste Oil Pits Site is a cost-effective remedy and provides adequate protection of public health, welfare, and the environment. The State of Florida has been consulted and agrees with the approved remedy. In addition, the action will require future operation and maintenance activities to ensure the continued effectiveness of the remedy. These activities will be considered part of the approved action and eligible for Trust Fund monies for a period of one year.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

May 30, 1985
Date

Jack E. Ravan
Regional Administrator
EPA Region IV

Summary of Remedial Alternative Selection
Whitehouse Waste Oil Pits
May 1985

SITE LOCATION AND DESCRIPTION

The community of Whitehouse, Florida (population approximately 6,000) is located within 0.25 miles east and southeast of the site. The community is composed primarily of two-bedroom houses and mobile homes on one-half to one-acre lots. Two major east-west highways, U.S. Highway 90 and Interstate 10, are approximately 0.5 miles south of the site (Fig. 2-1, 2-2). A low-density residential area is located west and northwest of the site, and several miles northwest of the site is the Cecil Field U.S Naval Air Station. The area north and northeast of the site is largely undeveloped land comprised of pine forests and cypress swamp.

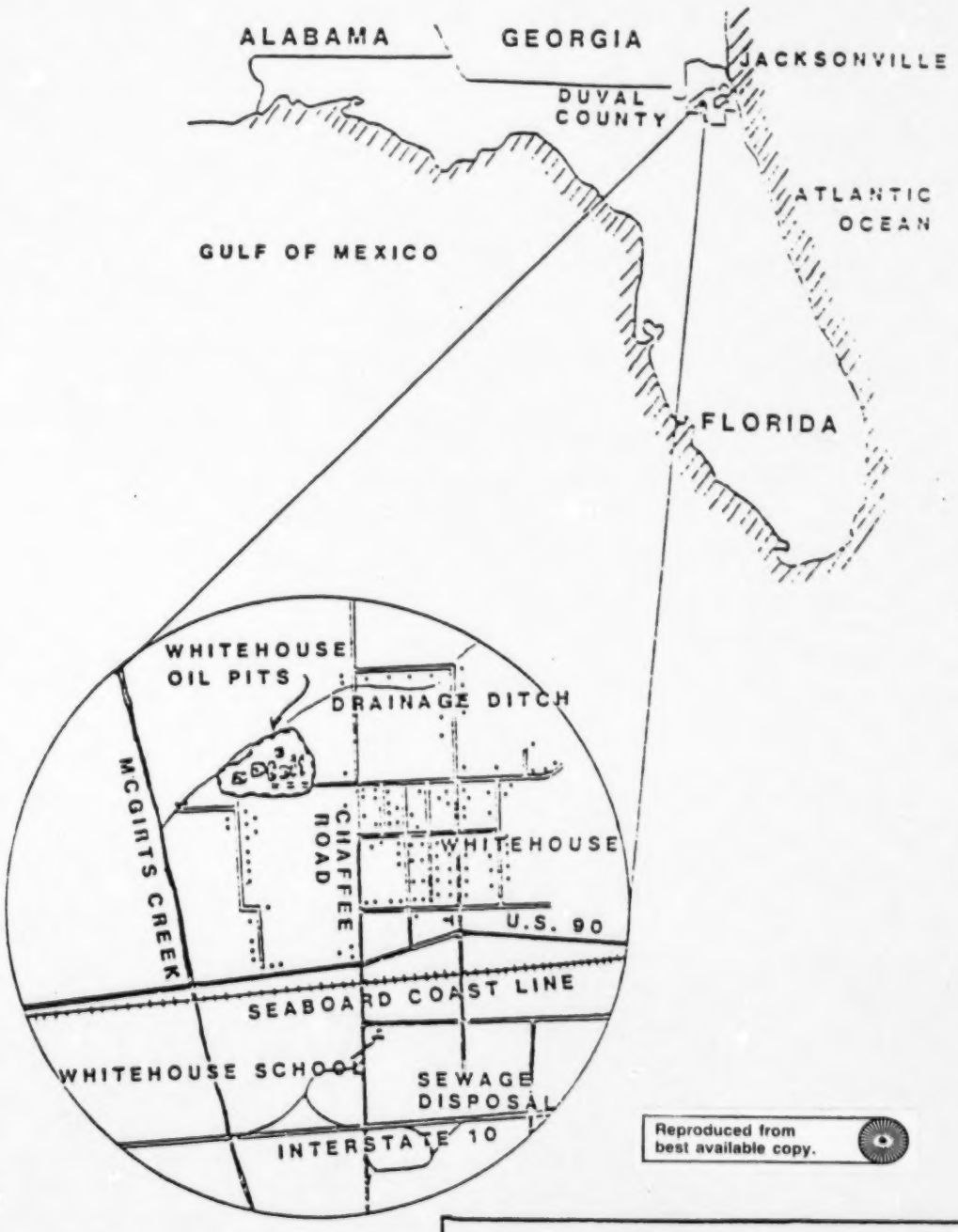
The Whitehouse Waste Oil Pits occupy approximately seven acres on an upland area immediately adjacent to a cypress swamp system (Fig. 2-3). The southern side of the site is bordered by open grassland, with the exception of the southwestern corner, which is a private residence. The nearest home is approximately 300 feet from the dike around the pits and a small backyard garden at that home is approximately 30 feet from the south ditch.

The northern and western sides of the site border a swamp system through which the Northeast Tributary runs. The stream originates from a 220-acre cypress swamp located approximately 0.5 miles upstream from the site.

The surficial and the Floridan are the two aquifer systems which supply drinking water in this area. The Floridan is at a depth of approximately 525 feet below the surface and supplies large water users. It is separated from the surficial aquifer system by the confining Hawthorn Formation which is about 350 feet thick in this area. The surficial aquifer system can be subdivided into 3 parts: the water table zone, a semi-confining (aquitard) zone, and the limestone unit (Fig. 2-4). The water table zone begins at 1.5 to 5 feet below land surface and is approximately 20 feet thick. The semi-confining zone exhibits a hydraulic conductivity in the 10^{-5} to 10^{-6} cm/sec. range and is about 60 feet thick. The final zone in the surficial system is the limestone unit, locally known as the "rock" aquifer. Local residents obtain their water from individual wells drilled into this zone.

The shallow groundwater contributes to local streams through a series of man-made ditches and natural drainage ways such as the Northeast Tributary of McGirts Creek.

WHITEHOUSE SITE PROJECT AREA



Reproduced from best available copy.

FIT - REGION IV
ecology and environment, inc.

FIGURE 2-1
LOCATION MAP

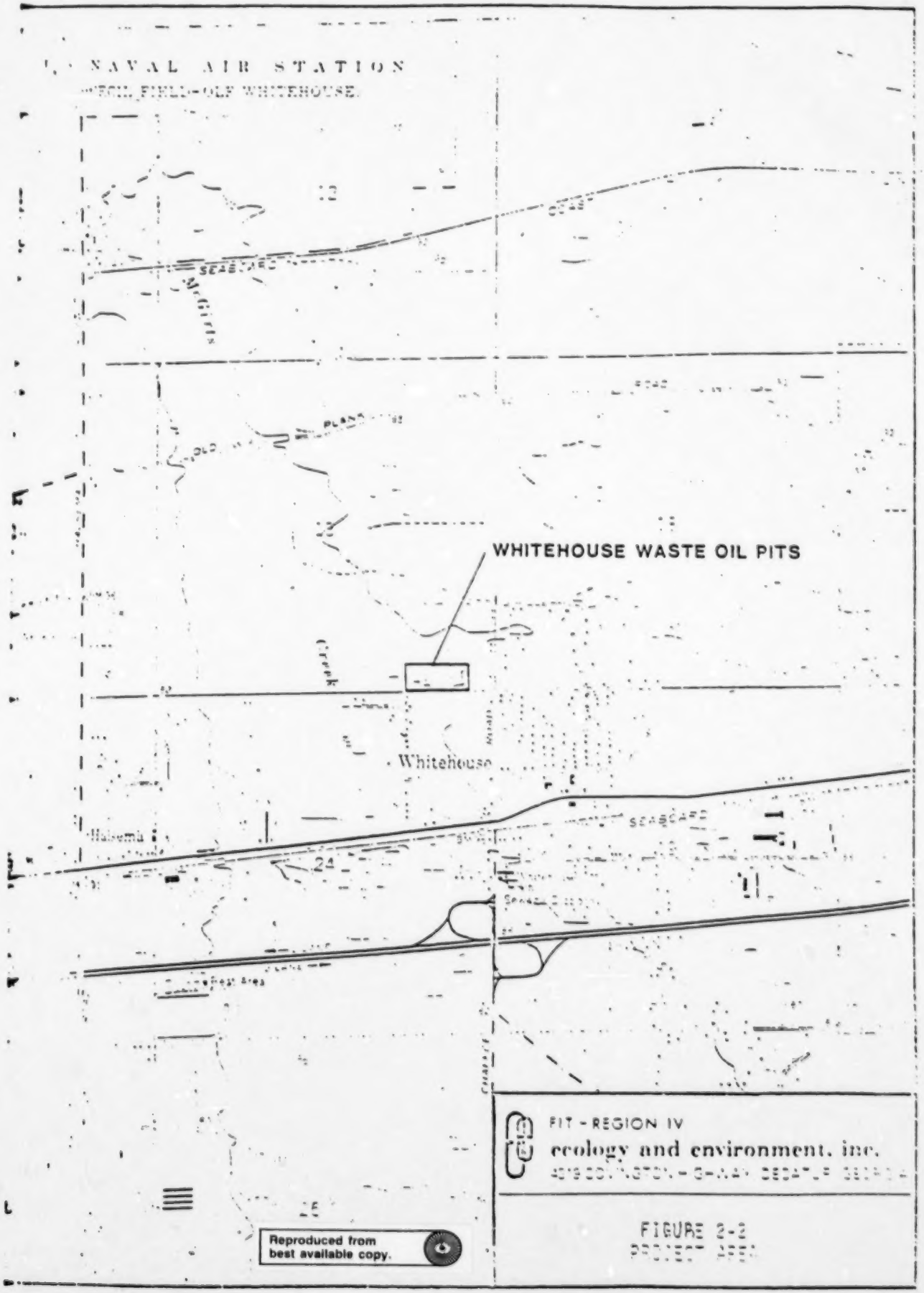
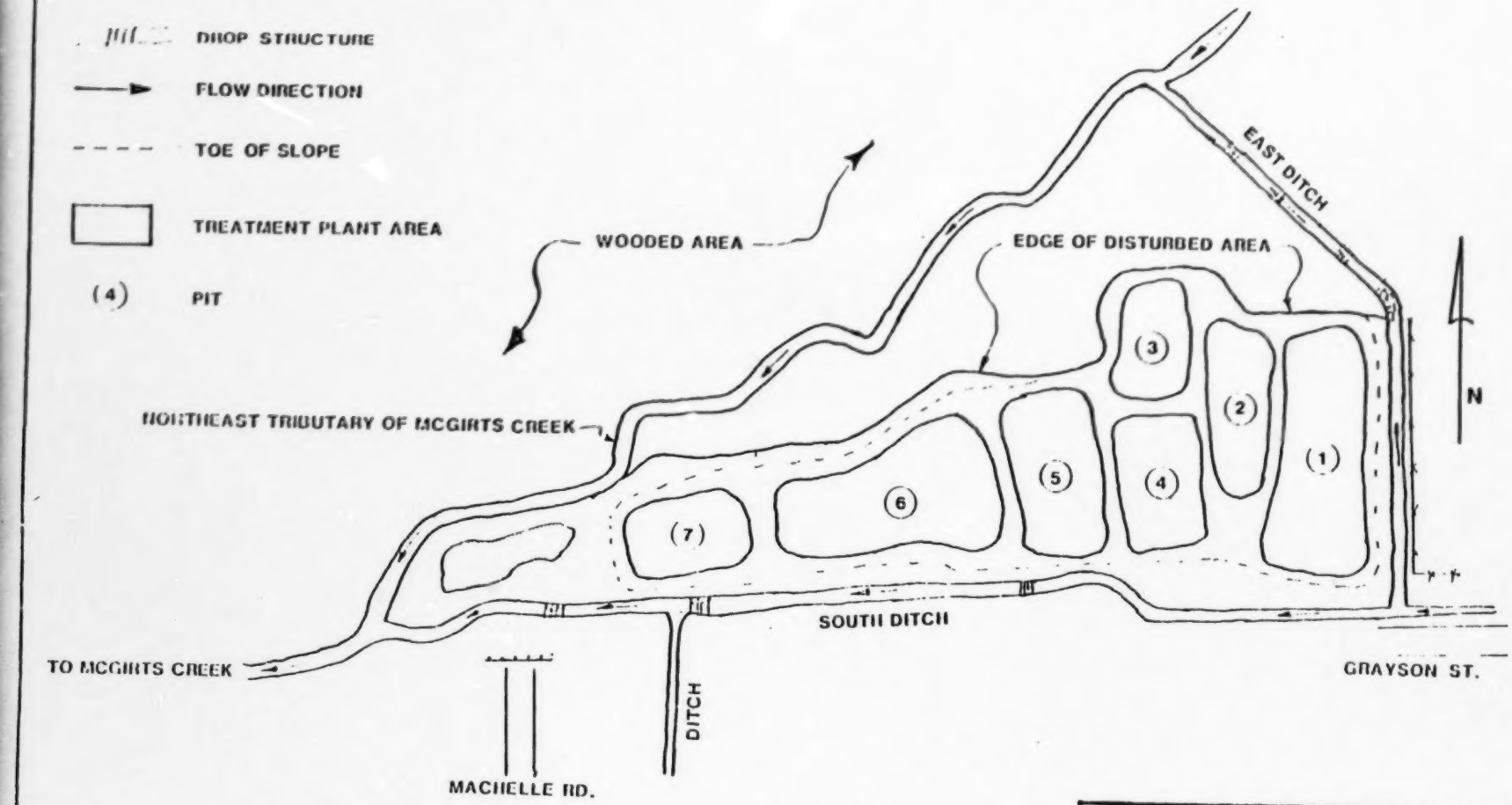


FIGURE 2-2
PROJECT AREA



FIT REGION IV
ecology and environment, inc.
4171 COVINGTON HIGHWAY, DECATUR GEORGIA

FIGURE 2-3
SITE SKETCH

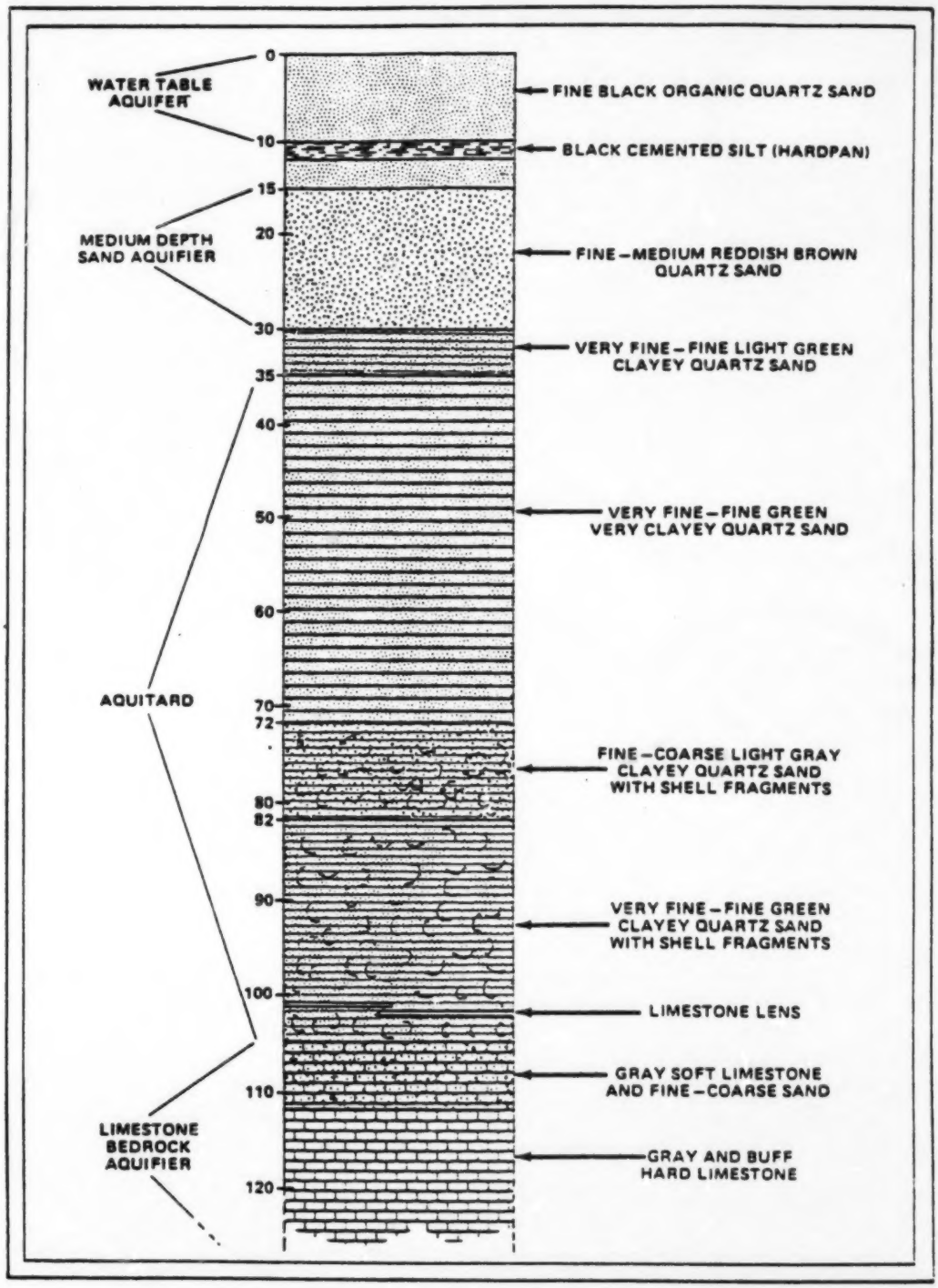


Fig. 2-4 TYPICAL SUBSURFACE LITHOLOGY AT WHITEHOUSE OIL PITS

The site itself consists of seven unlined pits where waste oil sludge, acid and contaminated waste oil from an oil reclaiming process were disposed.

SITE HISTORY

Allied Petroleum constructed the pits to dispose of waste oil sludge and acid from its oil reclaiming process. The first pits were constructed in 1958, and by 1968 the company had constructed and filled seven pits. Allied Petroleum then went bankrupt, and most of the property transferred to the City of Jacksonville for nonpayment of taxes. After they were abandoned by Allied Petroleum, the pits remained an "open dump" for several years. It is reasonable to assume that indiscriminant dumping occurred on during that time.

In 1968 the dike surrounding Pit No. 7 ruptured, and the contents spilled onto adjacent private property and into McGirts Creek. Pit No. 7 was backfilled with soil after this incident. Recognizing the need to control the water level in the other pits to prevent further discharge, the City of Jacksonville Mosquito Control Branch began building a two-cell oil-water separator in series with a limestone filter to dewater the pits. The project was never completed because of budget problems.

On June 29, 1976, the EPA Region IV Environmental Emergency Branch became involved following a 200,000-gallon oil spill from one of the remaining six pits. The spill resulted when the Jacksonville Mosquito Control Branch was attempting to repair a dike wall. EPA took control of the spill assessment and the cleanup of McGirts Creek and spent about $200,000 under provisions of Section 311 of the Clean Water Act. EPA also recognized the potential hazard posed by the remaining five pits, and with the assistance of the City of Jacksonville, constructed a treatment system in order to drain the pits.

After draining the water from the pits, the Mosquito Control Branch took measures to stabilize the ponds. Since the remaining viscous waste oil sludge would not support heavy construction equipment, the ponds were backfilled with selected construction debris, scrap lumber, trees, wood chips, and non-degradable wastes. A three-inch layer of automobile shredder waste was placed on top of this matrix. The more liquid portion of the waste oil sludge was pumped off, mixed with Fuller's earth, and then used as a backfill/sealer over the automobile shredder waste. This layer of Fuller's earth and oil was relatively impervious and should have prevented vertical percolation of rainwater. The Fuller's earth mixture was covered with eight

to twelve inches of clean earth (mostly sand). After the project ran out of Fuller's earth, local clay was substituted as a landfill capping material for the Fuller's earth and oil mixture. A theoretical cross-section of the oil pit stabilization plan is presented in Figure 2-5.

After stabilization was completed, the site was planted in local grasses and ditches were constructed to control drainage. This system was destroyed by vandals, and subsequent monitoring in 1979 showed the continuing release of pollutants to surface water and groundwater.

Following this monitoring, the City of Jacksonville covered the surface and sides of the pits and dikes with six inches of low-permeability local clay, followed by twelve inches of topsoil. This cover was revegetated using local grasses. The drainage system was again modified and lined with clay to keep leachate out of the surface water and drop structures were constructed to control flow velocity and erosion. This arrangement diverted surface water away from the landfill, thus reducing the mechanism for pollutant transport. This second stabilization project was completed in the summer of 1980. As an initial remedial action, drainage was further modified to control leachate seepage into the ditches along with steps to strengthen the dikes around the pits.

CURRENT SITE STATUS

The waste oil recovery process used by Allied Petro Products was the Acid-Clay Process. This process forms as by-products a waste-acid tar and spent acidic clays which are corrosive. The seven unlined pits contained an estimated 127,000 cubic yards of waste. Stabilization activities have increased the volume of contaminated material to an estimated 240,000 cubic yards.

Contaminants Detected

Major contaminants at the site include hexavalent chromium, arsenic, lead, phenols, benzene and PAH, (fluoranthene, phenanthrene, pyrene).

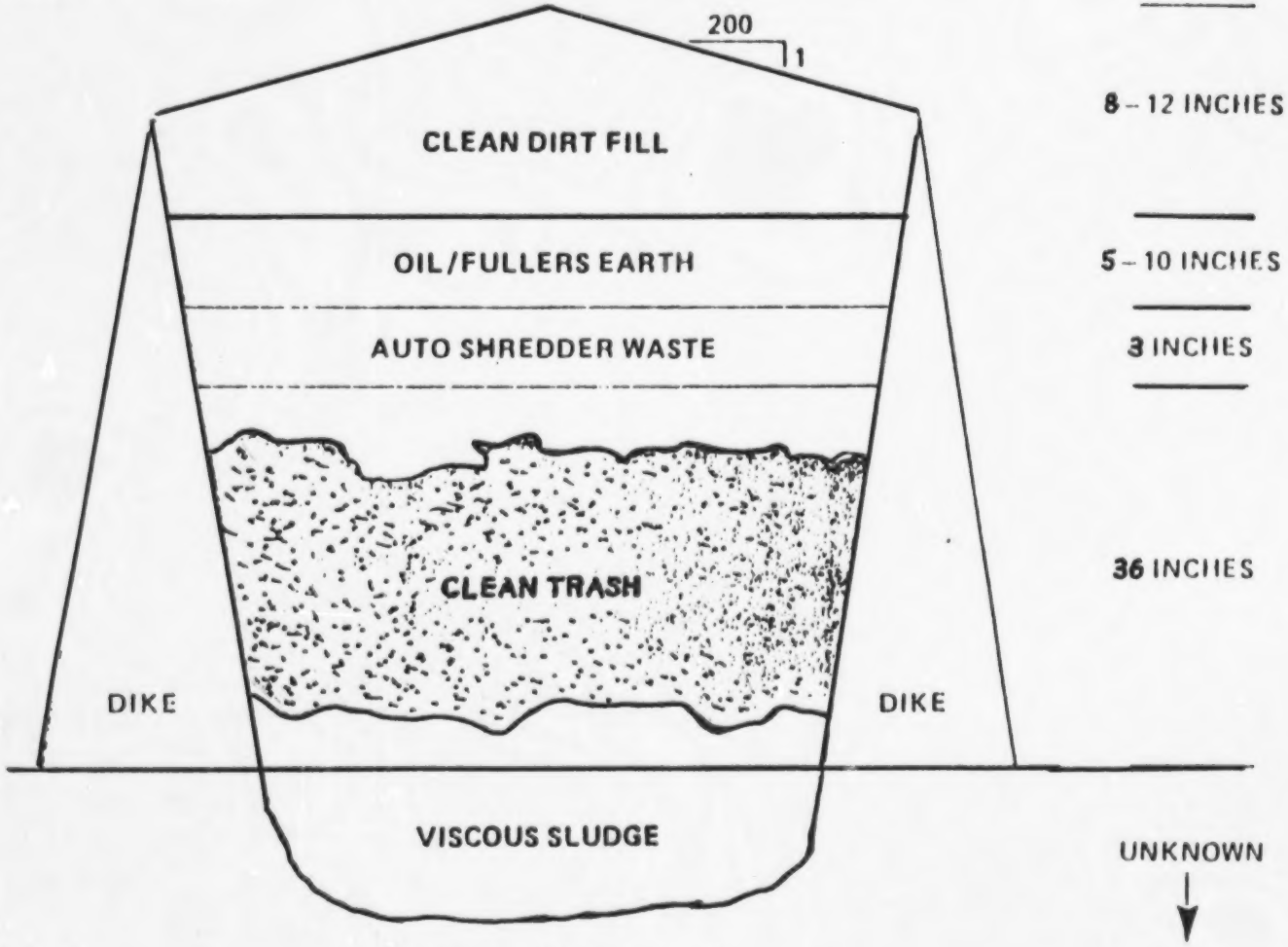
Groundwater data showed arsenic (10ppb), chromium (68,000ppb), lead (376ppb), benzene (9ppb), and phenols (330ppb) in the shallow water table aquifer beneath the site.

Off-site groundwater data showed metals contamination with a maximum concentration of chromium at 10ppb.

Phenanthyrene was found at 710ppb at the 10' depth at one location in soil.

Adjacent off-site surficial soils showed 7ppb chromium at the 10' depth.

Fig. 2-5 THEORETICAL CROSS-SECTION OF THE FILLED OIL PITS



Surface water samples showed significantly lowered pH.

Improvements made to the site by the City of Jacksonvile in 1980 and the initial remedial measures (IRM) done under cooperative agreement with the State have significantly reduced the hazards at the site and ensured that no large-scale spills would occur again. Erosion continues to be a problem at the site. Testing by the State indicated that heavy rains and eroding dike walls have allowed pollutants to slowly seep into surface water. As expected, soil samples from beneath the clay cap of the pits show gross contamination by heavy metals and low levels of a few organic compounds. The only soils beyond the pits which are badly contaminated are the soils in the swamp or floodplain north of the pits, between the pits and the northeast tributary (Fig. 2-3).

The quality of surface water was tested at five sampling stations in the drainage basin. These samples show that the surface water quality in McGirts Creek significantly improved since 1977. This improvement is directly related to the work done by the local, state and federal agencies which prevented further large scale contamination. However, the effect of the pits is still evident since the surface water contains heavy metals and a lowered pH. The water quality of the creek is also threatened by the seepage which has polluted the soil in the flood plain north of the pits.

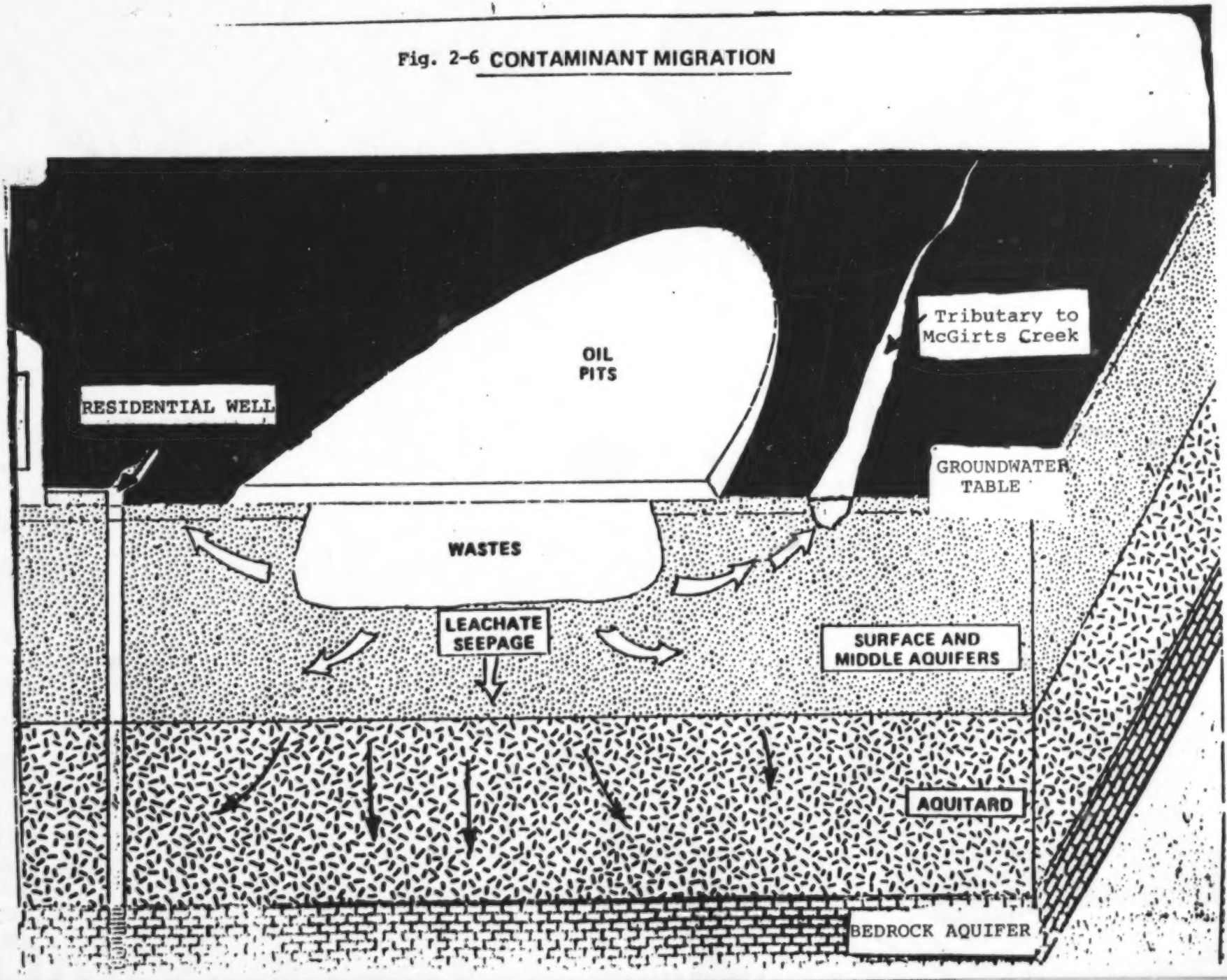
Areas of potential groundwater contamination were located by conductivity tests. Thirty-six wells at a variety of depths were installed to sample groundwater. The shallow groundwater (7-15 ft) between the pits and the northeast tributary is grossly contaminated by heavy metals and organic compounds. Only low levels of organic compounds were detected across the northeast tributary and beyond the south drainage ditch. Thus, shallow groundwater contamination seems to be localized close to the site (Fig. 2-6).

Vertical migration has reached into the aquitard (35'-60'). The deeper wells (100-125 ft) close to the site show low levels of heavy metals and organic compounds. This is of special concern since these wells are in the same aquifer used by many residents. All the residential wells near the site that were downgradient of the pits were tested during the remedial investigation. No contamination from the pits was detected in any of the wells. The State will continue to monitor quality of the residential wells.

Potential Pathways/and Receptors

Pathway	Release	Receptor
Ingestion/contact	Surface Water	McGirt's Creek
Ingestion/contact	Groundwater (lateral)	Surface streams

Fig. 2-6 CONTAMINANT MIGRATION



Ingestion	Groundwater (vertical)	Bedrock aquifer (domestic wells)
Direct contact	Waste on site	Humans and animals
Inhalation	Air Emissions (waste)	Local population

The eventual receptor for surface runoff is McGirt's creek which empties into the St. John's River approximately 10 miles downstream. Neither of these bodies of water supply drinking water, but are areas of environmental concern.

As late as 1983 (prior to completion of the IRM) seepage of contaminated leachate through the dike walls was observed. State bioassays using a weak concentration of the leachate showed it to be very toxic. Direct contact with leachate and leachate contaminated surface water is a concern.

The domestic water supply aquifer beneath the site is protected by a fairly consistent aquitard. Sampling has shown contamination in the shallow aquifer and evidence of contamination moving down into the aquitard (permeability about 10^{-5} cm/sec). Groundwater degradation is an immediate concern and a reason for taking preventative action.

Although the IRM was constructed as an attempt to reinforce the dike walls and prevent further spread of contamination, this measure is not adequate for long term containment of the waste. To compound site problems, erosion caused by motorcycles, dirt buggies, heavy rainfall and hurricanes pose additional risks to all population groups surrounding the site.

The Whitehouse community has approximately 6,000 residents. Almost all depend on groundwater from the 110'-160' deep "rock" aquifer. In the area of the site there are approximately 255 users of water from the "rock" aquifer.

ENFORCEMENT

The Whitehouse Waste Oil Pits Site was established by Allied Petro-Products, Inc. (APP) in the late 1950's for receiving waste oil and acid clay sludges. The potentially responsible parties known at the site are APP, Richard Peters - current property owner, and the City of Jacksonville. However, both the Office of Regional Counsel (ORC) and the program office recommended not to identify the City of Jacksonville as a responsible party because the city was an incidental owner by tax default.

Mr. Peters and APP were sent notice letters on March 5, 1982. The letter to APP was returned unclaimed. Mr. Peters responded to the notice letter by correspondence dated June 5, 1982. He does not appear to be a viable PRP at this time.

APP has been defunct for almost 18 years. In addition, investigation by the ORC indicated that almost all of the corporate principals have passed away and there are no facts

presently available that would suggest that the government could reach the principals either by penetrating the corporate entity or as joint tort-feasors. We have discovered no information linking the waste disposal to any presently existing corporate entities either as generators or as successors to APP.

ALTERNATIVES EVALUATION

Response Objectives

Groundwater

Objective: To prevent further migration of contaminated groundwater into the underlying aquitard; to prevent contamination of the local drinking water supply.

Criteria: Groundwater quality to meet FDER Primary Drinking Water Standards. Pollutants with no standards are to be kept to existing background concentrations or minimal risk levels.

Surface Water

Objective: To reduce or eliminate migration of contamination to surface water.

Criteria: Surface water quality to meet the State water quality standards.

Waste Sludges

Objective: To eliminate the source, treat the source to a less hazardous or non-hazardous state, or contain the release of hazardous pollutants off-site.

Criteria: Surface water quality to meet the State water quality standards.

Contaminated Soil and Sediment

Objective: To reduce or eliminate migration of contaminated soil and sediments.

Criteria: Acceptable concentrations of contaminants migrating from soils and sediments off-site to meet background concentrations in adjacent soils or minimal risk levels.

Initial List of Alternatives

The following initial list of alternatives were evaluated for this site:

Problem	Remedial Technology
Waste (Source Control)	1. Excavation and disposal in a secure landfill off-site 2. Excavation and disposal in a secure landfill or vault on-site 3. Excavation and thermal destruction on-site or off-site ° fluidized bed ° liquid injection ° wet air oxidation ° molten salt ° starved air pyrolysis ° rotary kiln ° multiple hearth furnace 4. No action
Groundwater Contamination	1. Permeable treatment beds 2. Bioreclamation 3. Impermeable barriers ° slurry wall ° grout curtain ° sheet piling 4. Groundwater pumping and treatment ° biological (activated sludge, anaerobic, aerobic, facultative lagoons, support growth reactors) ° chemical (chlorination, photolysis, oxidation, neutralization, precipitation) ° physical (precipitation, carbon adsorption, ion exchange, liquid ion exchange, reverse osmosis, wet air oxidation, ultrafiltration, stripping) 5. No action

Problem	Remedial Technology
Surface Water and Soil Contamination	1. Surface seals

	2. Diversion/collection structures
	3. Regrading and revegetation
	4. No action
Air Pollution	1. Thermal oxidation
	2. Vapor phase adsorption
	3. No action
Contaminated Sediment/PCB's	1. Hydraulic dredging
	2. Mechanical dredging
	3. No action

Detailed Evaluation of Alternatives

The draft feasibility study included a detailed description of 17 alternative remedial actions. The 17 alternatives involve different combinations of actions that fall within three main options: 1) no action, 2) excavation, and 3) containment.

In addition to handling the pit waste, some alternatives include strategies to deal with contaminated groundwater and residual contamination in the stream sediment left from the pit overflows that took place in the last decade. To insure that rainfall will not increase the movement of contaminants through percolation or stormwater runoff, some alternatives include placing a clay cap over the site. A complete list of alternatives for the excavation and containment options can be found in Table I and Table II. A summary of these options follows.

No Action Option - the site is left as is and monitored every six months.

Excavation Options - The ten excavation options involve digging up specific areas of the site and disposing of the contaminated material in some fashion. The excavation options differ primarily by the area to be excavated and the disposal method used.

Three disposal methods were considered, the vault method, the landfill method and the incineration method. The vault method requires construction of an on-site cement lined cavity that would be filled with excavated material. The off-site landfill method requires that excavated material by hauled to a federally

TABLE I

OPTION B

EXCAVATION

	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10
AREA TO BE EXCAVATED										
Entire Site			x							
Pits Only	x	x		x	x	x	x	x	x	x
Creek Sediments	x	x	x	x	x	x	x	x	x	x
DISPOSAL METHOD										
Vault				x						
Landfill On-site	x									
Landfill Off-site		x	x							
Incineration On-site					x	x	x	x		
Incineration Off-site									x	x
Incinertion Of Sludges Only					x	x				
Incineration Of Entire Pit							x	x	x	x
Ash Disposal On-site					x		x			
Ash Disposal Off-site						x		x	x	x
GROUND WATER TREATMENT										
Ground Water Treatment On-site	x	x	x	x	x	x	x	x	x	x
Construction Dewatering (temporary)	x	x	x	x	x	x	x	x	x	x
Permanent Extraction Wells	x	x		x	x	x	x	x	x	x
SURFACE CAP										
Surface Cap Entire Site		x				x		x	x	x
Surface Cap Partial Site	x			x	x		x			
COST (present worth)	$12,611,000	$66,594,000	$224,824,000	$17,973,000	$87,184,000	$110,122,000	$126,262,000	$137,603,000	$71,390,000	$84,258,000

Page retyped for NTIS-June 18, 1985

TABLE II
OPTION C
CONTAINMENT

	C-1	C-2	C-3	C-4	C-5	C-6
SLURRY WALL						
Slurry Wall Around Entire Site	x	x			x	
Slurry Wall Around Pits Only			x	x		x
EXCAVATION						
Excavation Selected Areas Other Than Pits			x	x		
Excavation Of Creek Sediments	x	x	x	x		
GROUND WATER TREATMENT						
On-site Treatment Facility	x		x			
Construction Dewatering (temporary)	x	x	x	x	x	x
Permanent Extraction Wells	x		x			
SURFACE CAP						
Surface Cap Entire Site	x	x			x	
Surface Cap Partial Site			x	x		x
COST (present worth)	$3,049,000	$2,447,000	$2,722,000	$2,120,000	$2,338,000	$1,991,000

Page retyped for NTIS - July 8, 1985

approved hazardous waste landfill. The on-site landfill requires disposal of excavated materials in a double lined facility constructed on-site. The incineration method involves burning the excavated materials in a rotary kiln or multiple hearth furnace. The by-product of incineration is an ash that would require disposal in a landfill.

In addition to the disposal methods, the excavation options vary with the area covered by a surface cap and the use of groundwater treatment.

Containment Options - the six containment options are designed to prevent movement of contaminants off-site. The containment options involve the placement of a slurry wall around the contaminated area.

This option can be very effective in eliminating movement of contaminated groundwater when used in conjunction with a groundwater recovery and treatment system.

The containment options differ primarily in the area contained and the use of groundwater treatment. The options also consider excavation of certain areas and surface caps.

RECOMMENDED REMEDIAL ACTION

An important part of the feasibility study was to evaluate the remedial alternatives and identify the most appropriate cost effective alternative which meets the objectives. In addition to the response objectives, other factors were used to evaluate the alternatives. These factors included: capital cost, operation and maintenance cost, level of cleanup, reliability, special engineering considerations, implementability, environmental effects (air, surface water, groundwater, soil/sediments), legal constraints, and time required for implementation. A detailed evaluation was conducted by the engineering consultant and is presented in the feasibility study. This evaluation is summarized in Table III.

TABLE III

Alternative	Cost ($1,000) Capital	O & M*	Present Worth	Public Health Considerations	Environmental Effects	Technical Considerations
A-1	0	24.6	269	Does not meet any remedial response objectives. Probable contamination of residential water supply. Present public health threat below reference risk level. However, future worst-case situation indicates unacceptable level of risk.	Continued migration of contaminated groundwater offsite, leading to possible future contamination of drinking water supplies of area residents. Continued leachate generation from source (pits). Leachate plume migrating north from the site will eventually intersect the tributary creating, in turn, a long-term threat to water quality of McGirts Creek.	--
B-1	11,714	94.1 52.9	12,611	Totally meets remedial response objectives. Reduces public health threat to acceptable levels. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of contaminant migration in groundwater and surface water. Permanent disruption of area environment by on-site landfill; may affect property values and area development potential.	Relies on widely-used technologies. O&M requirements for landfill, cap, and groundwater treatment facility will be substantial.
B-2	66,069	56.3 15.1	66,594	Totally meets remedial response objectives. Reduces public health threat to acceptable levels. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of contaminant migration in groundwater and surface water. Temporary disruption of area environment during remedial activities.	Relies on widely-used technologies. O&M requirements for groundwater treatment facility and cap will be substantial.

* Where two figures are given, the first number represents O&M costs for the period 0 to 25 years (including groundwater treatment); the second number represents costs for 26 to 50 years.

Page retyped for NTIS - July 11, 1985

TABLE III (Cont.)

Alternative	Cost ($1,000) Capital	O & M*	Present Worth	Public Health Considerations	Environmental Effects	Technical Considerations
B-3	224,684	9.3	224,824	Totally meets remedial response objectives. Reduces public health threat completely. High risk to remedial workers during excavation of pits.	Removes source of contamination and all secondary on-site contamination. Temporary disruption of area environment during remedial work.	Relies on straight-forward construction technology.
B-4	17,456	55.1 13.9	17,973	Totally meets remedial response objectives. Reduces public health threat to acceptable level. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of migration of contaminants in groundwater and surface water. Permanent disruption of existing area environment by on-site vault; visually not aesthetic; may affect property values and area development potential.	Relies on widely-used technologies. O & M requirements for vault and groundwater treatment facility will be substantial.
B-5	86,471	75.4 34.2	87,184	Totally meets remedial response objectives. Reduces public health threat to acceptable level. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges). Alleviates problem of contaminant migration in groundwater and surface water. Air quality affected by on-site incineration. Permanent disruption of existing area environment by on-site landfill; may affect property values and area development potential.	Relies on state-of-the-art technology (mobile incineration); high operation and maintenance requirements. Provides ultimate disposal of source contaminants.
B-6	109,586	57.4 16.1	110,122	Totally meets remedial response objectives. Reduces public health threat to acceptable level. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges). Alleviates problem of contaminant migration in groundwater and surface water. Air quality affected by on-site incineration. Temporary disruption of area environment during remedial activities.	Relies on state-of-the-art technology (mobile incineration); high operation and maintenance requirements. Provides ultimate disposal of source contaminants.

Page retyped for NTIS - July 11, 1985

TABLE III (Cont.)

Alternative	Cost ($1,000) Capital	O & M*	Present Worth	Public Health Considerations	Environmental Effects	Technical Considerations
B-7	125,599	70.2 29.1	126,262	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of contaminant migration in groundwater and surface water. Air quality affected by on-site incineration. Temporary disruption of area environment during remedial activities.	Relies on state-of-the-art technology (mobile incineration); high operation and maintenance requirements. Provides ultimate disposal of source contaminants.
B-8	137,068	57.4 16.2	137,603	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of contaminant migration in groundwater and surface water. Air quality affected by on-site incineration. Temporary disruption of area environment during remedial activities.	Relies on state-of-the-art technology (mobile incineration); high operation and maintenance requirements. Provides ultimate disposal of source contaminants.
B-9	70,854	57.4 16.2	71,390	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges). Alleviates problem of contaminant migration in groundwater and surface water. Temporary disruption of area environment during remedial activities.	Provides ultimate disposal of source contaminants by off-site thermal destruction.
B-10	83,722	57.4 16.2	84,258	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. High risk to remedial workers during excavation of pits.	Removes contamination source (sludges and cover materials). Alleviates problem of contaminant migration in groundwater and surface water. Temporary disruption of area environment during remedial activities.	Provides ultimate disposal of source contaminants by off-site thermal destruction.

Page retyped for NTIS - July 11, 1985

TABLE III (Cont.)

Alternative	Cost ($1,000) Capital	O & M*	Present Worth	Public Health Considerations	Environmental Effects	Technical Considerations
C-1	2,302	82.0 40.8	3,049	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. Low risk to remedial workers.	Isolates waste sources from area groundwater and from surface water infiltration. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Will require long-term monitoring of the contaminant system to check effectiveness.
C-2	2,072	40.8	2,447	Partially meets the remedial response objectives. Does not reduce public health threat to acceptable limits. Low risk to remedial workers.	Isolates waste source from area groundwater and from surface water infiltration. Existing contaminated groundwater will migrate off-site. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Will require long-term monitoring of the containment system to check effectiveness.
C-3	1,985	81.0 39.8	2,722	Totally meets the remedial response objectives. Reduces public health threat to acceptable limits. Moderate risk to remedial workers during installation of slurry wall in contaminated zone.	Isolates waste source from area groundwater and from surface water infiltration. Provides partial removal (soils north of pits) of secondary contamination. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Slurry wall placement in contaminated zone increases potential for failure. Will require long-term monitoring of the containment system to check effectiveness.
C-4	1,754	39.8	2,120	Partially meets the remedial response objectives. Does not reduce public health threat to acceptable limits. Moderate risk to remedial workers during installation of slurry wall in contaminated zone.	Isolates waste source from area groundwater and from surface water infiltration. Provides partial removal (soils north of pits) of secondary contamination. Existing contaminated groundwater will migrate off-site. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Slurry wall placement in contaminated zone increases potential for failure. Will require long-term monitoring of the containment system to check effectiveness.

Page retyped for NTIS - July 11, 1985

TABLE III (Cont.)

Alternative	Cost ($1,000) Capital	O & M*	Present Worth	Public Health Considerations	Environmental Effects	Technical Considerations
C-5	1,978	39.2	2,338	Partially meets the remedial response objectives. Does not reduce public health threat to acceptable limits. Low risk to remedial workers.	Isolates waste source from area groundwater and from surface water infiltration. Existing contaminated groundwater will migrate off-site. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Will require long-term monitoring of the containment system to check effectiveness.
C-6	1,640	38.3	1,991	Partially meets the remedial response objectives. Does not reduce public health threat to acceptable limits. Moderate risk to remedial workers during installation of slurry wall in contaminated zone.	Isolates waste source from area groundwater and from surface water infiltration. Contaminated soils north of pits will remain. Existing contaminated groundwater will migrate off-site. Temporary disruption of area environment during remedial activities.	Relies on well-established technologies. Slurry wall placement in contaminanted zone increases potential for failure. Will require long-term monitoring of the containment system to check effectiveness.

Page retyped for NTIS - July 11, 1985

This evaluation revealed the following:

The "no-action" alternative is an unacceptable solution to the problems at the Whitehouse site, since it does not meet any of the objectives. The potential for the heavily contaminated shallow aquifer just beneath the site to seep into the drinking water supply classifies the site, according to risk calculations, as a site at which remedial action must be taken. Additional concern is the lateral movement of contaminants to groundwater via the surface streams. Boyles (FDER-RI Report) strongly suggests that the streams and nearby creek are intercepting contaminated water from the site.

Alternatives B-1 and B-4 involve removal of the most concentrated waste products and storage in an on-site landfill or vault. These actions do not provide total source cleanup and create additional technical, environmental, and health problems associated with their implementation. Specific concerns are addressed in the feasibility study and include limited space, higher health hazards to workers and residents, and permanent disruption of the area environment by the on-site landfill or vault. The remaining excavation options involve incineration or disposal at an off-site landfill and are cost-prohibitive.

Alternatives C-2, C-4, C-5, and C-6 are unacceptable because they only <u>partially</u> address the remedial objectives.

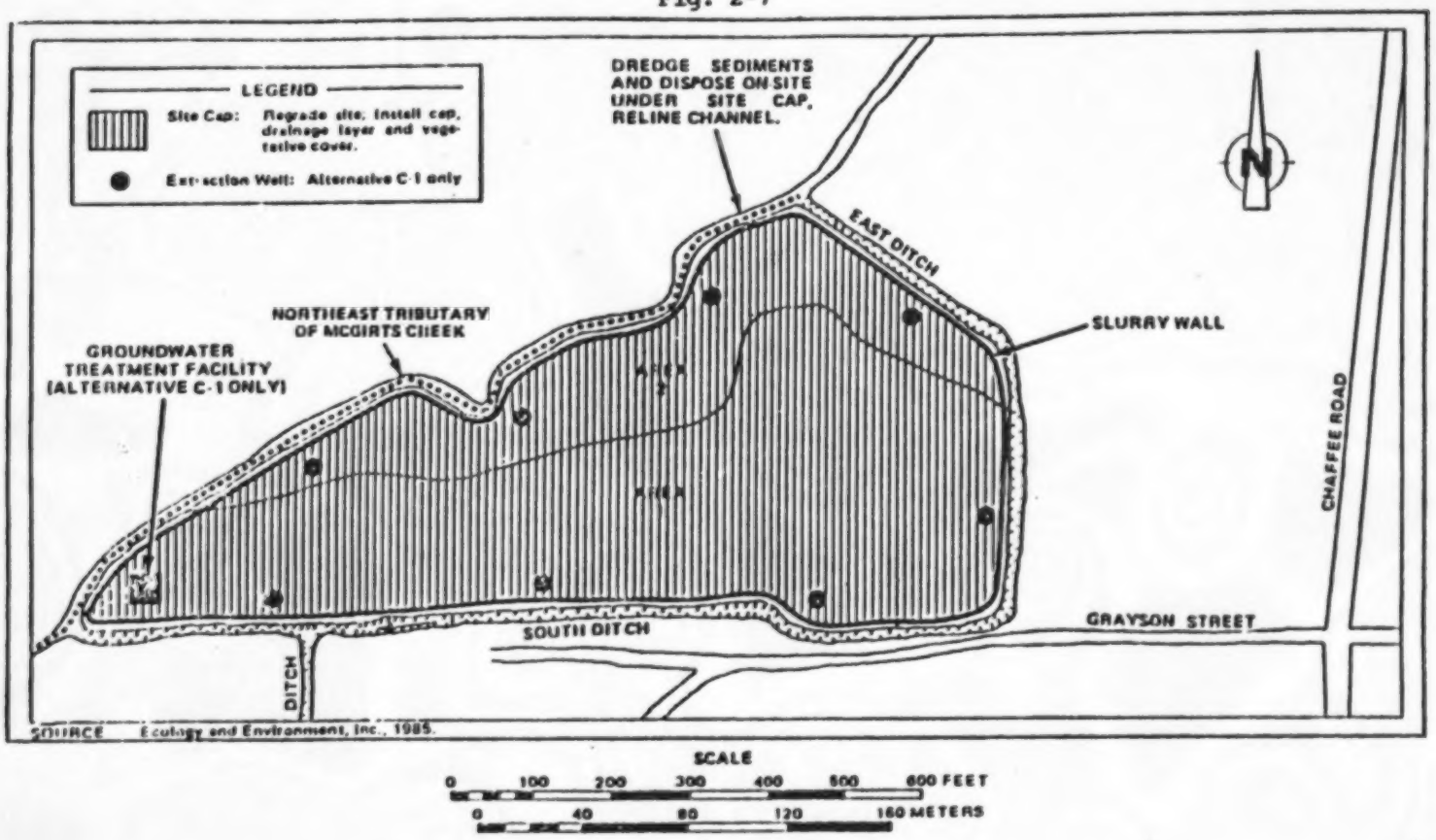
Alternative C-1 appears to be the most reasonable and, further, is recommended by the consultant since it fully meets the objectives at the lowest cost. The recommended alternative C-1 consists of: (See Fig. 2-7)

- Construction of a slurry wall around the entire site;
- Recovery and treatment of contaminated groundwater;
- Removal of contaminated sediments from the Northeast Tributary of McGirts Creek; and
- Surface cap entire site.

The slurry wall will be effective in preventing horizontal movement of contaminated groundwater. By placing a cap over the site, the amount of groundwater and surface water seeping into the contaminated area will be greatly reduced.

An integral part of the alternative is the groundwater pumping/treatment system. The removal of contaminated groundwater from the area enclosed by the slurry wall will create an upward flow into the area through the aquitard which will effectively prevent any downward migration of contaminants. An additional advantage of this upward flow is that the influx of clean water will create a "flushing" action which will provide for some removal of the soluble contaminants. The FS consultant believes that the 25 year period proposed will accomplish sufficient flushing to allow shutdown of the groundwater recovery system.

Fig. 2-7


LEGEND
Site Cap: Regrade site, install cap, drainage layer and vegetative cover.
Extraction Well: Alternative C-1 only
DREDGE SEDIMENTS AND DISPOSE ON SITE UNDER SITE CAP, RELINE CHANNEL.
EAST DITCH
SLURRY WALL
NORTHEAST TRIBUTARY OF MCGIRTS CREEK
GROUNDWATER TREATMENT FACILITY (ALTERNATIVE C-1 ONLY)
CHAFFEE ROAD
GRAYSON STREET
SOUTH DITCH
DITCH
SOURCE Ecology and Environment, Inc., 1985.
SCALE
0 100 200 300 400 500 600 FEET
0 40 80 120 160 METERS

ALTERNATIVE C--1 SLURRY WALL AND GROUNDWATER TREATMENT

COMMUNITY RELATIONS

Three public meetings were held to inform the public of activities at the site. Fact sheets and press releases were prepared for all meetings. The press and television covered the meetings extensively. The third meeting was to present the draft feasibility study and allow for public comment. A responsiveness summary outlining the results of public comment is enclosed. An information repository was established at the elementary school in Whitehouse. When approved, this record of decision will be sent to the repository.

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Alternative C-1 would result in the discharge of treated water. We anticipate meeting the technical requirements of NPDES for this discharge. While PCB's have been found at the site, concentrations are well below those that trigger action under TSCA. The RCRA program has commented on the remedy and their comments can be addressed during the remedial design phase. We do not see, nor do we anticipate, any conflict with other environmental laws. Table III summarizes the evaluation of alternatives with respect to environmental concerns, among others.

OPERATION AND MAINTENANCE (O&M)

Alternative C-1 includes recovery and treatment of contaminated groundwater. The conceptual design suggests a maximum flow-through capacity of approximately 80,000 gallons per day. A groundwater monitoring program will be initiated consisting of eight new monitoring wells. Six wells will be set into the middle aquifer and two into the aquitard. Existing well D4 will be included in this system to monitor the bedrock aquifer. The estimated annual O&M cost is 96,630, projected for a 25 year period. A letter is included with this ROD confirming the State's committment to funding these continuing costs.

SCHEDULE

The Corps of Engineers (COE) has advertised for firms to conduct the remedial design. Review and selection of a contractor is scheduled for June 1985 with remedial design complete in June 1986. Construction should proceed immediately thereafter with construction complete in June 1987.

FUTURE ACTIONS

Oak Ridge National Laboratory has been tasked through an IAG to provide guidance on design of the groundwater recovery system to maximize its effectiveness for flushing soluble wastes from the pits. This may allow us to reduce the time that the groundwater recovery system operates.

27

May 30, 1985 2:30 pm

AGENDA

Whitehouse ROD Briefing

Intro- What is a ROD?	Mr. Devine
Overview- The CERCLA Process	Russ Wright
The CERCLA Process @ Whitehouse	Jim Orban
Site History	
Description of Proposed Remedy	Jack Snider
Questions	All
Signing of ROD, Dec. Memos & IAG	Mr. Ravan

Page retyped for NTIS - July 8, 1985